

Geometry 7.1 Notes: Ratios in Similar Polygons

Warm-up: In the space below do 1-5, 9, 16-20 on page 463.

21. What are similar shapes?

22. What is the symbol for similar?

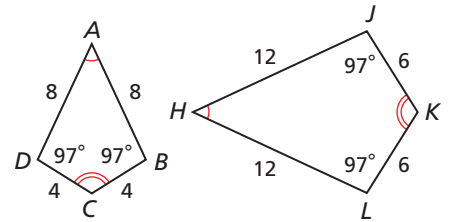
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23. In order for two polygons to be similar, what two conditions must be met?

1.

2.

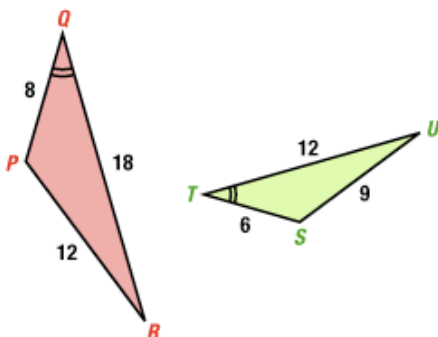
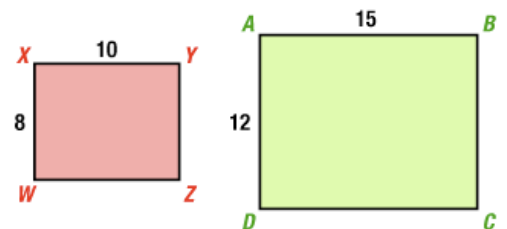
24. Example: Identify the pairs of congruent angles and corresponding sides:



25. What is a similarity ratio?

For problems 26 and 27, open your online textbook and watch lesson video #2. Use your headphones.

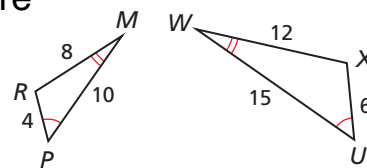
26. Determine whether the polygons are similar. Explain why or why not.



27. Determine whether the polygons are similar. Explain why or why not.

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28.Guided Practice: Determine whether the polygons are similar. If so, write the similarity ratio and a similarity statement.



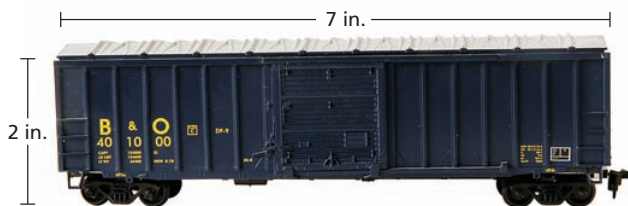
EXAMPLE 3 Hobby Application

A Railbox boxcar can be used to transport auto parts. If the length of the actual boxcar is 50 ft, find the width of the actual boxcar to the nearest tenth of a foot.

Let x be the width of the actual boxcar in feet. The rectangular model of a boxcar is similar to the rectangular boxcar, so the corresponding lengths are proportional.

Helpful Hint

When you work with proportions, be sure the ratios compare corresponding measures.



$$\frac{\text{length of boxcar}}{\text{length of model}} = \frac{\text{width of boxcar}}{\text{width of model}}$$

$$\frac{50}{7} = \frac{x}{2}$$

$$7x = (50)(2)$$

$$7x = 100$$

$$x \approx 14.3$$

Cross Products Prop.

Simplify.

Divide both sides by 7.

The width of the model is approximately 14.3 ft.

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29.

Art The town of Goodland, Kansas, claims that it has one of the world's largest easels. It holds an enlargement of a van Gogh painting that is 24 ft wide. The original painting is 58 cm wide and 73 cm tall. If the reproduction is similar to the original, what is the height of the reproduction to the nearest foot?

